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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,484	03/30/2004	Cezary Dubnicki	02022-B	5531

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NEC Laboratories America, Inc.
4 Independence Way
Princeton, NJ 08540

EXAMINER
TODD, GREGORY G

ART UNIT	PAPER NUMBER
2457	

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12/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2009*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10,21 and 25* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-10,21 and 25* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some *   c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____ .

DETAILED ACTION

Response to Amendment

1.   This office action is in response to applicant's amendment and request for

continued examination filed, 03 November 2009, of application filed, with the above

serial number, on 30 March 2004 in which claims 1, 3, and 4 have been amended and

claim 2 has been cancelled. Claims 1, 3-10, 21, and 25 are pending in the application.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1, 4-10, 21, and 25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Zhang et al (hereinafter "Zhang", 6,985,928) in view of Ratnasamy et

al (hereinafter "Ratnasamy", "A scalable content addressable network"), and further in

view of Milos et al (hereinafter "Milos", 2002/0161983).

As per Claim 1, Zhang teaches a method for improving utilization in a peer-to-peer

network having a plurality of nodes, the method comprising:

one or more storage slots in each node in the peer-to-peer network (at least col.

3 line 47 - col. 4 line 54, node storage);

wherein:

each node comprises a respective amount of physical storage capacity (at least col. 3 line 47 - col. 4 line 54; node storage);

each storage slot represents a predefined amount of storage capacity (at least col. 3 line 47 - col. 4 line 54; node storage and utilization);

at each node, a first portion of the storage slots host storage zones and any remaining storage slots are allocated as free slot reserve storage slots (at least col. 2, lines 27-42; col. 3 line 47 – col. 4 line 54; p2p system consisting of nodes being in storage zones);

the method further comprising:

storing data in the storage zones (at least col. 3, lines 55-67; objects stored in zones); and

when a storage zone reaches a full capacity of the storage zone, splitting the data in the the storage zone into a first and second portion, converting a free slot reserve storage slot into a new storage zone, and transferring the second portion of the data to the new storage zone (at least col. 3 line 47 - col. 4 line 54; parent zone split into two subzones, zones being crowded – placing (converting) object in other (new) subzone).

Zhang fails to explicitly teach each node storing data in the storage slots hosting storage zones. However, the use and advantages for using such a system is well known to one skilled in the art at the time the invention was made as evidenced by the

teachings of Ratnasamy. Ratnasamy teaches each node in a peer to peer network

storing and hosting a zone of a hash table including data and when a zone becomes

full, splitting the zone in half and single nodes storing multiple zones (see p. 162, col.

1:5-10; p. 163 col. 1; p. 165 col. 2; p. 164 col. 1:1-13; Fig. 1). Therefore, it would have

been obvious to one of ordinary skill in the art, at the time the invention was made, to

incorporate the use of Ratnasamy's zoning with Zhang as they are both in the same

endeavor and Ratnasamy would more efficiently index a peer to peer system to scale

over many nodes and split data among nodes when nodes are underutilized or over

utilized.

Zhang and Ratnasamy (hereinafter "the combination") fails to teach each node

hosts a number of storage slots representing a total amount of storage capacity greater

than the node's physical storage capacity. However, the use and advantages for using

such a system is well known to one skilled in the art at the time the invention was made

as evidenced by the teachings of Milos. Milos teaches a virtual storage system wherein

host computers are oversubscribed to physical storage devices, thus being promised

more physical storage than it is truly capable of storing on the connected storage

devices (at least paragraph 57, 71). Therefore, it would have been obvious to one of

ordinary skill in the art, at the time the invention was made, to incorporate the use of

Milos' oversubscription with the combination as Ratnasamy teaches overloaded nodes

and zones handing off space to underloaded nodes and zones (section 3.6, 3.4), and

combined with Milos, would offer optimal storage and device efficiency (Milos par. 9)

over traditional virtual storage.

As per Claim 4. The method of claim 1 wherein a storage zone at a node is transferred to another node in the peer-to-peer network if the data inserted into the storage zones at the node fills the actual physical capacity of the node (at least col. 4 line 39 – col. 5 line 56; storage utilization).

As per Claim 5. The method of claim 4 where a local search for candidate nodes in a transfer set is conducted prior to transfer of the storage zone (at least col. 4 line 39 – col. 5 line 34; subzone having least # of nodes).

As per Claim 6. The method of claim 1 wherein the new storage zone is transferred to and hosted by a free slot reserve storage slot on a different node when the storage zones hosted at the node exceed the storage slots allocated at the node (at least col. 4 line 39 – col. 5 line 34; node in available subzone).

As per Claim 7. The method of claim 6 where a local search for candidate nodes in a transfer set is conducted prior to transfer of the new storage zone at least col. 4 line 39 – col. 5 line 34).

As per Claim 8. The method of claim 1 wherein the data is associated with hashkeys of a hash function and where each storage zone is responsible for a subset of all hashkeys (at least col. 2, lines 52-60; DHS).

As per Claim 9. The method of claim 8 wherein the hashkeys are uniformly distributed by the hash function (at least col. 2, lines 52-60; DHS).

As per Claim 10. The method of claim 1 wherein the storage slots are of a fixed-size (at least col. 3, lines 55-67; one size for parent zone).

As per Claim 21. The method of claim 1, wherein each storage zone is hosted by a storage slot located within a particular physical node (at least col. 3, lines 14-21).

As per Claim 25. The method of claim 1, wherein a zone is hosted within a slot and a size of the slot is a system-wide constant representing the limit size to which a zone can grow before it fills the slot and it must be split (at least col. 3 line 55 – col. 4 line 54; one size for parent zone, zone is logical space including one or more objects).

Allowable Subject Matter

4. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 4-10, 21, and 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newly cited Wideman et al, Zhang et al ('553), Ebstyne et al, and

Karpoff et al, in addition to previously cited Sutherland et al, Goodman, Moulton et al,

Franzenburg, Tormasov et al, and Hensley et al are cited for disclosing pertinent

information related to the claimed invention. Applicants are requested to consider the

prior art references for relevant teachings when responding to this office action.

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to GREGORY G. TODD whose telephone number is

(571)272-4011. The examiner can normally be reached on Monday - Friday 9:00am-

5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. G. T./
Examiner, Art Unit 2457

/ARIO ETIENNE/
Supervisory Patent Examiner, Art Unit 2457